



**Universiteit Utrecht**

**Parental goals, parental warmth and toddler temperament in relation to toddler  
prosocial behavior**

Masterthesis Clinical Child and Youth Psychology

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Utrecht, June 2018

### **Abstract**

This research examined the influence of parental goals, parental warmth, and toddler temperament on toddler prosocial behavior. In addition, it examined whether parental warmth acts as a mediator between parental goals and prosocial behavior, and toddler temperament as a moderator between parental warmth and prosocial behavior. Prosocial observational tasks among 82 toddlers (mean age = 21.59 months) were conducted and surveys were completed by their parents and teachers. Regression analysis was used to analyze data. Parental goals and parental warmth were not significant predictors of toddler prosocial behavior. Also, there was no significant mediation effect of parental warmth. A significant relation between parental warmth and teacher reported toddler prosocial behavior was found. Additionally, there was a significant interaction effect between toddler temperament and parental warmth on observational toddler prosocial behavior. Future research should focus on additional parental behaviors that can influence the development of toddler prosocial behavior.

*Keywords:* parental goals, parental warmth, toddler prosocial behavior, toddler temperament

### **Samenvatting**

Deze studie onderzoekt de invloed van ouderlijke doelen, ouderlijke warmte en temperament van peuters op sociaal gedrag van peuters. Daarbij wordt onderzocht of ouderlijke warmte als mediator optreedt tussen ouderlijke doelen en sociaal gedrag en of temperament van de peuter als moderator optreedt tussen ouderlijke warmte en sociaal gedrag. Sociaal gedrag werd geobserveerd bij 82 peuters (gemiddelde leeftijd = 21.59 maanden) en vragenlijsten werden ingevuld door ouders en leerkrachten. Regressieanalyses werden uitgevoerd om de data te analyseren. Ouderlijke doelen en ouderlijke warmte waren geen significante voorspellers voor sociaal gedrag van peuters en er bleek geen significant mediatie-effect van ouderlijke warmte. Er werd een significante relatie gevonden tussen ouderlijke warmte en leerkracht gerapporteerd sociaal gedrag van peuters. Ook bleek er een significant interactie-effect tussen het temperament van peuters en ouderlijke warmte op het geobserveerde sociale gedrag van peuters. Vervolgonderzoek kan zich richten op ouderlijke gedragingen die mogelijk ook invloed hebben op de ontwikkeling van sociaal gedrag van peuters.

*Keywords:* ouderlijke doelen, ouderlijke warmte, sociaal gedrag van peuters, temperament van peuters

Parental goals, parental warmth and toddler temperament in relation to toddler prosocial behavior

Prosocial behavior of children already emerges at the age of two (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Therefore, studies that include toddlers can shed light on the mechanisms behind the development of this behavior (Gross et al., 2015; Kärtner, Keller, & Chaudhary, 2010; Newton, Thompson, & Goodman, 2016). Although several studies have focused on the relation between parental behaviors and toddler prosocial behavior (Gross et al., 2015; Newton et al., 2016), very few studies have focused on parental goals in relation to prosocial behavior of toddlers (Schuhmacher & Kärtner, 2015). Also, few studies have focused on the influence of child temperament on the relation between parental goals and child prosocial behavior (Gross et al., 2015; Slagt, Dubas, Deković, & Van Aken, 2016). This is important, because temperament impacts the sensitivity children have to influences from the environment (Pluess, 2015). Therefore it possibly impacts the amount of influence that parental goals have on child prosocial behavior. The aim of the current study is to contribute to the understanding of the development of prosocial behavior in toddlers.

Prosocial behavior is defined as the voluntary activities that are intended to benefit another, and is associated with prosocial values and motives (Eisenberg, Fabes, & Spinrad, 2006). Prosocial behavior seems to be facilitated by empathy (Penner, Dovidio, Piliavin, & Schroeder, 2005). This is an affective response that corresponds with the expected feelings of the other person, that derives from understanding their emotions (Eisenberg et al., 2006). According to Hoffman (2000), empathy develops while infants go through a maturing sense of differentiation between the self and others. The behaviors infants show in social interactions before they are able to differentiate, can be considered as a manifestation of self-distress in response to distress of the other, and therefore as a precursor of empathy (Hoffman, 2000). Other-oriented empathy, directed at others instead of the self, develops during the second year of life, when toddlers become aware of the feelings of others and of the difference between the other and themselves (Eisenberg et al., 2006; Hoffman, 2000). Accordingly, in the study of Brownell, Svetlova and Nichols (2009), 24-month-old toddlers were significantly more willing to share an object with another participant, than 18-month-old toddlers. This suggests that the younger toddlers were not yet able to understand the internal states of the other and take their needs into consideration. When toddlers mature, they need less communicative support to act prosocially, and by the age of two they have the cognitive, emotional and behavioral capacity to interpret the emotional states of others, experience these affectively, and attempt to comfort the other (Zahn-Waxler et al., 1992).

Although toddlers have a biological tendency to display prosocial behavior by the development of empathy (Penner et al., 2005), there are variations on the degree to which toddlers perform prosocial behavior. This becomes clear when comparing the prosocial behavior of toddlers across different cultures (Trommsdorff, Friedlmeier, & Mayer, 2007). As prosocial behavior of toddlers seems to be motivated by the relationship with caregivers (Newton et al., 2016), these variations could be due to the different levels of importance parents attach to the prosocial behavior of their children, depending on their cultural origins (Kärtner et al., 2010; Suizzo, 2007). When prosocial behavior is highly desired by parents, it can be described as a value, that guides attitudes and actions when they are activated (Schwartz, 2010). These values are reflected in parental goals, defined as the parental beliefs and expectations about the characteristics they would like their children to achieve while interacting with them (Dix, 1992). There is only one study demonstrating that the expectations of parents about the prosocial behavior of their toddlers are related to the toddlers' displayed collaborating behaviors (Schuhmacher & Kärtner, 2015). Therefore, the first purpose of this research is to extend the knowledge of the direct relationship between parental goals of prosocial behavior and toddlers' prosocial behavior.

As values motivate actions and behavior (Schwartz, 2010), parental goals could influence the way parents behave toward their children. This is in accordance with studies showing that parental behaviors are based on parental goals (Darling & Steinberg, 1993), with a stronger relationship between goals and behavior when there is more importance attached to the goal (Schwartz, 2010). Because it is already known that parental behaviors influence the behavior of toddlers (Grusec, 2011; Patterson & Fisher, 2002), it is of importance to examine whether parental behavior mediates the relationship between parental goals of prosocial behavior and the prosocial behavior of toddlers. Therefore, the second purpose of this research is to focus on parental warmth, which is defined as the tendency to support the child, show affection and approval and be sensitive to the child's needs (Zhou et al., 2002). Showing this behavior, increases the likelihood of toddlers accepting the guided learning of parents, whereby they are provided with information and coached in tasks (Grusec, 2011). Parental warmth seems to be related to the prosocial behavior of toddlers, as maternal sensitivity leads to higher levels of prosocial behavior by 18-months-old toddlers (Newton et al., 2016), although more studies are needed to confirm this association.

Although parental behavior can influence the prosocial behavior of toddlers (Gross et al., 2015), the degree to which they are affected by parental socialization seems to differ. This can be due to the temperament of the child, defined as the natural predisposition of behavioral

and emotional responses to the environment (Holt et al., 2012). Because temperament impacts the sensitivity children have to influences from the environment (Pluess, 2015), it could impact the influence parental warmth have on toddler prosocial behavior. For example, the differential susceptibility model states that children with the temperamental style negative emotionality, will be more affected by both negative and positive parenting (Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2007; Slagt et al., 2016). Consequently, the prosocial behavior of toddlers high on negative emotionality could be more influenced by parental behavior compared to toddlers who are low on negative emotionality. Prior research, which did not find an association between toddler temperament and prosocial behavior (Gross et al., 2015), did not examine negative emotionality. This temperamental style is characterized by being distressed easily (Slagt et al., 2016), and can be divided into two subtypes, namely fear and anger/frustration. Fear refers to distress children can experience in response to novelty, and anger/frustration refers to distress in response to limitations (Crockenberg & Leerkes, 2003). Anger/frustration can also be defined as the negative affect children can display after an ongoing task is interrupted or a goal is hindered (Rothbart, Ahadi, Hershey, & Fisher, 2001). Because parents appear to report lower levels of prosocial behavior of children with higher levels of teacher reported anger/frustration (Zhou, Eisenberg, Wang, & Reiser, 2004), this subtype of negative emotionality seems to be associated with prosocial behavior. Therefore, the third purpose of this study is to focus on anger/frustration and examine its association with prosocial behavior.

The present study examines whether parental goals of prosocial behavior and parental warmth are predictors of toddler prosocial behavior and whether parental warmth mediates the association between parental goals and toddler prosocial behavior. Also, this study investigates whether toddler temperament of anger/frustration moderates the association between parental behavior and toddler prosocial behavior. It is expected that higher parental goals of prosocial behavior will lead to a higher degree of prosocial behavior of the toddler, mediated by high levels of parental warmth. Also, deriving from the differential susceptibility model, it is expected that the relation between parental warmth and toddler prosocial behavior will be stronger when toddlers display a higher degree of anger/frustration, compared to toddlers with lower levels of anger/frustration.

## **Methods**

### **Participants**

For this study, participants were drawn from the first two waves of a three-wave longitudinal study on the development of prosocial behavior, called 'Little Helpers'. At wave

1, 116 toddlers participated in the study. In this study, 82 toddlers (40 girl, 42 boy) had data available at wave 1 and 2. At wave 1, the toddlers were aged between 16 and 28 months ( $M = 21.59$ ,  $SD = 3.41$ ). Of the toddlers, 99% was born in the Netherlands. The participating toddlers were either firstborn (46.3%), second born (43.9%), third born (4.9%), or fourth born (1.2%). Also, the parents of the toddlers participated (96.3% woman, 2.4% men). Most parents had a middle-class background and originated from the Netherlands (95.1%). Bias checks comparing the children who dropped out ( $N = 34$ ) to those with data at wave 2 revealed no significant differences.

### **Procedure**

The sample was recruited by calling daycares in the Netherlands. After approval of the daycares, parents received a letter informing the study and invitation to participate. Then, at each wave questionnaires were sent to the parents at home, to collect data about the behavior and temperament of the toddlers and about parental goals and practices. The participating 23 daycares received a children's book. Parents and children did not receive any compensation for participating.

To collect data about the prosocial behavior of the toddlers, every 6 months an experimenter (E) and an assistant experimenter (AE) conducted three experimental tasks at the daycares, a sharing, helping and comforting task. The sharing task was always completed first, after which the helping and comforting tasks were conducted in a counterbalanced order.

### **Measures**

**Prosocial behavior.** This variable was measured in two ways. First, by the coded experiment studies of the sharing, helping, and comforting task, and second, by teacher reports.

#### ***Experiment observation studies.***

*General preparations.* Before the experiment started, E and AE introduced the snack to the toddler in the warm up phase. In this way, the toddler was familiar with the treat and with E and AE. After the warm up phase, before the experiment could start, E and AE prepared the tasks. For the sharing tasks, there were four animals with their bowls, and a bowl for the toddler placed on the table. Also, a bowl with five treats was placed out of sight of the toddler. For the other tasks, five napkins, five LEGO bricks, and a blanket were placed behind the table, so the toddler could not be distracted by irrelevant objects during the tasks. E ensured that the toddler was comfortable sitting at the table, before she started the task of the introduction phase. After the introduction phase, the formal sharing, helping and comforting

tasks were conducted in about ten minutes. The experiments were video-recorded from two points of views for later coding.

*Sharing task.* Before the formal sharing task was performed, an introduction sharing task was conducted. For the introduction task, E showed the toddler four puppets, a mouse, a rabbit, a cat and a panda, each with their own bowls in front of them. E indicated that the stuffed animals like snacks and asked the toddler whether he/she likes them as well. E gave one treat to each puppet, and one treat to the toddler. Next, E gave the toddler the bowl with five treats and asks whether the toddler could give each puppet one treat. If the toddler did not share the treats, E used five cues to encourage the toddler, before sharing the treats herself. E thanked the toddler for playing the game and placed the puppets and bowls behind the table. The bowl of the toddler stayed on the table for the next task.

For the formal sharing task, E introduced a stuffed monkey to the toddler. The bowl of the toddler was still on the table after the introduction phase, and E gave monkey a bowl as well. E pointed out that both the toddler and monkey did not had treats and gave the toddler two, four or eight treats, based on different conditions. During the task, the number of treats in the bowl of the toddler was kept constant. Next, three manipulation conditions were conducted, of which the order varied randomly for each toddler. For the first condition, E showed the toddler a treat from the common bowl and gave this to the monkey. For the second condition, E showed the toddler a treat from the common bowl and asked the toddler to give it to the monkey. For the third condition, E pointed out there were no more treats, and asked the toddler to share a treat of their own with the monkey. Then, E let the toddler say goodbye to the monkey (Aknin, Hamlin, & Dunn, 2012).

*Helping task.* E laid five LEGO bricks on the table and explained to the toddler that the bricks had to be wrapped into napkins. E showed the toddler five napkins and placed one of them discretely in front of the toddler, out of reach of E. E wrapped four bricks with the napkins, and showed the toddler there was one more napkin needed for the last brick. E asked the toddler for help by using eight cues in a specific order, waiting five seconds before using the next cue: 1. Using facial and bodily expression: E picked up the brick and placed it back on the table, looked around confused, palms up. 2. Naming the action: E mentioned she could not wrap anymore. 3. Expressing the need: E mentioned she needs something to wrap. 4. Naming the object: 'Napkins'. 5. Alternating gaze between the toddler and the napkin. 6. Gesture: E reached with open hand towards the napkin. 7. General instruction: E asked the toddler to help her. 8. Specific instruction: E asked the toddler to give her more napkins. When the toddler handed the napkin to E, E thanked the toddler and wrapped the last brick.

When the toddler did not hand the napkin, E cleared the table (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Svetlova, Nichols, & Brownell, 2010).

*Comforting task.* E demonstrated to the toddler the function of a blanket, by wrapping it around her shoulders and pointing out the blanket makes her feel warm. The blanket was then placed next to the toddler, out of reach of E. E pointed out she would search for bear, and handed a stuffed bear to the toddler to play with. After 30 till 60 seconds, E showed the toddler she felt cold. E asked the toddler for help by using eight cues the same way as for the helping task: 1. Using facial and bodily expression: E embraced herself and shivered, ‘brrr’. 2. Naming the action: E mentioned she was cold. 3. Expressing the need: E mentioned she needs something to make her feel warm. 4. Naming the object: ‘My blanket’. 5. Alternating gaze between the toddler and the blanket. 6. Gesture: E reached with open hand towards the blanket. 7. General instruction: E asked the toddler to help her. 8. Specific instruction: E asked the toddler to give her the blanket. When the toddler handed the blanket to E, E thanked the toddler and wrapped it around her shoulders. When the toddler did not hand the blanket, E took the blanket herself and wrapped it around her shoulders (Brownell et al., 2013; Svetlova et al., 2010).

*Scoring of prosocial behaviors.* For the introduction sharing task, it was coded whether the toddler shared or did not share treats with the four animals, and how many. For the formal sharing task, it was coded whether the toddler did or did not share the treat with the monkey out of the common bowl. Also, the number of treats the toddler shared with the monkey out of his or her own bowl was coded, both before and after E had asked. During the introduction and formal sharing task, it was coded whether, and how many treats the toddler ate during the task, and whether the toddler gave any treats to E. For the helping and comforting task, the coded helping score corresponded with the displayed helping cue after which the toddler had handed E the target object. Children received one point per prosocial behavior they performed (shared after asking, helping, and comforting), and zero if they did not. A total prosocial score was calculated by adding up the points received after the three tasks.

### ***Teacher reports.***

Second, prosocial behavior of the toddler was measured by teacher ratings at wave 1 on the subscale ‘Prosocial Peer Interactions’ of the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2000). Five items were rated on a three-point Likert scale ranging from 0 (*rarely*), to 2 (*often*). A sample item of this subscale is: ‘Takes turns when playing with others’. Higher scores mean higher levels of prosocial behavior of



the toddler. The reliability of the subscale 'Prosocial Peer Interactions' in this study was considered acceptable with a Cronbach's  $\alpha$  of .79 at wave 1 and  $\alpha$  of .73 at wave 2.

**Parental goals.** The goals of prosocial behavior were measured at wave 1 with the 'Prosocial Behavior' subscale of the Relational Socialization Goals Scale (Kärtner et al., 2010). Three items were rated on a six-point Likert scale ranging from 1 (*Not important at all*), to 6 (*Extremely important*). An example item of this subscale is: 'Learn to help others'. A higher score means a higher value of parents about the prosocial behavior of their child. The reliability of this subscale in this study was considered good with a Cronbach's  $\alpha$  of .86.

**Parental warmth.** Parental warmth was measured at wave 1 with a combination of items from existing Dutch questionnaires, 4 items about attachment of the Nijmegen Parenting Stress Index (NOSI; De Brock, Vermulst, Gerris, & Abidin, 1992), and 4 items about affection (Gerris et al., 1993). The 8 items were rated on a seven-point Likert scale ranging from 1 (*Not true at all*), to 6 (*Exactly right*). An example item of the subscale 'Attachment' is: 'I feel that I have a close bond with this child'. An example item of the subscale 'Affection' is: 'I often let my child know that I love him/her'. Higher scores on this questionnaire imply higher degrees of parental warmth. The reliability of this measure in this study was considered acceptable with a Cronbach's  $\alpha$  of .72.

**Temperament.** This variable was measured with parents' rates at wave 1 on the Early Children's Behavior Questionnaire Short Form (ECBQ-SF; Putnam & Rothbart, 2006). The subscale 'Anger/Frustration' was used, consisting of 6 items that were rated on a seven-point Likert scale ranging from 1 (*Never*), to 7 (*Always*). An example item of this subscale is: 'While having trouble completing a task (e.g., building, drawing, dressing), how often did you child get easily irritated?' Higher scores mean a higher measure on the temperamental style anger/frustration of the toddler. The reliability of this subscale in this study was considered good with a Cronbach's  $\alpha$  of .82.

### **Analysis**

For the analysis, descriptive statistics were assessed by a bivariate Pearson correlation test and then whether the data complied to the assumptions of normality, linearity, multicollinearity, homoscedasticity, and outliers. Next, PROCESS by Hayes in IBM SPSS Statistics 24 was used to perform the regression analyses. The variables parental goals, parental warmth and toddler temperament were considered as independent variables. Toddler prosocial behavior and teacher reported prosocial behavior at wave 2 were regarded as dependent variable. Toddler prosocial behavior and teacher reported prosocial behavior at wave 1 were considered as control variables.

To perform the mediation analyses, toddler prosocial behavior at wave 2 was entered as dependent variable, parental goal as independent variable, parental warmth as mediator, and toddler prosocial behavior at wave 1 as control variable. To perform the moderation analyses, toddler prosocial behavior at wave 2 was entered as dependent variable, parental warmth as independent variable, toddler temperament as moderator, and toddler prosocial behavior at wave 1 as control variable. Both analyses were also performed with teacher reported prosocial behavior at wave 1 and 2 in replacement of toddler prosocial behavior at wave 1 and 2.

## Results

### Descriptive statistics

For all dependent and independent variables, the means ( $M$ ), standard deviations ( $SD$ ), and ranges are provided in Table 1. To examine the size and direction of the linear relationship between the variables, a bivariate Pearson's product-moment correlation coefficient ( $r$ ) was calculated. The results in Table 2 show there was a weak positive relationship between toddler prosocial behavior at wave 1 and wave 2,  $r = .261, p < .01$ . This means that higher scores on prosocial behavior at wave 1, is related to higher scores at wave 2. Also, there was a weak negative relationship between teacher reported prosocial behavior at wave 1 and toddler temperament,  $r = -.270, p < .05$ . This means that higher scores on teacher reported prosocial behavior, is related to lower scores on toddler temperament of anger/frustration. No other variables appeared to be correlated.

Table 1.

*Mean, Standard Deviations and Ranges of Toddler Prosocial Behavior Wave 1 and 2, Teacher Reported Prosocial Behavior Wave 1 and 2, Parental Goals, Parental Warmth, and Toddler Temperament.*

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Toddler Prosocial Behavior W1	1.94	1.00	.00	3.00
Toddler Prosocial Behavior W2	2.23	.86	.00	3.00
Teacher Prosocial Behavior W1	2.00	.64	1.00	3.00
Teacher Prosocial Behavior W2	2.04	.54	1.00	3.00
Parental Goals	4.16	.95	1.67	6.00
Parental Warmth	6.75	.41	4.88	7.00
Toddler Temperament	3.18	1.02	1.33	5.50

*Note.* Teacher Prosocial Behavior = Teacher reports on toddlers' prosocial behavior.

Table 2.

*Pearson Correlations of all variables.*

	1	2	3	4	5	6	7
1 Toddler Prosocial Behavior W1	-	.261**	.182	.022	.032	-.121	.077
2 Toddler Prosocial Behavior W2		-	.156	.108	.170	-.006	.163
3 Teacher Prosocial Behavior W1			-	.220	.062	-.048	-.270*
4 Teacher Prosocial Behavior W2				-	.077	.188	-.035
5 Parental Goals					-	.181	.069
6 Parental Warmth						-	-.139
7 Toddler Temperament							-

*Note.* Teacher Prosocial Behavior = Teacher reports on toddlers' prosocial behavior.

\* $p < .05$ ; \*\* $p < .01$

Prior to interpreting the results of the regression analyses, several assumptions were evaluated. First, stem-and-leaf plots and boxplots indicated the variables toddler prosocial behavior at wave 1 and 2 and parental warmth did not meet the normal distribution assumption and appeared to be left skewed. The variables teacher reported prosocial behavior at wave 1 and 2, parental goals and toddler temperament did meet the assumption of normal distribution. Outliers were detected within the variables toddler prosocial behavior at wave 2, and parental warmth. Second, inspection of the normal probability plot and the scatterplot indicated that the assumptions of linearity and homoscedasticity of residuals were met. Third, relatively high tolerances for all predictors in the regression model indicated that multicollinearity would not interfere with the interpretation of the model. The outliers within toddler prosocial behavior at wave 2, reflected children who showed no prosocial behavior, while for parental warmth some parents reported lower levels of warmth, but within a normal range. Given the limited number of issues, and the robustness of the PROCESS model, the regression analyses was conducted.

#### **Parental goals and parental warmth in relation to toddler prosocial behavior**

A regression analyses was performed to examine whether observational toddler prosocial behavior at wave 2, controlling for prosocial behavior at wave 1, is predicted by parental goals and parental warmth, and whether parental warmth serves as a mediator between parental goals and toddler prosocial behavior. The results reflected in Table 3 show that prosocial behavior at wave 1 was significantly related to prosocial behavior at wave 2,  $b = .21, t = 2.15, p = .03$ . Parental goals and parental warmth were not significant predictors of toddler prosocial behavior. Using PROCESS to examine indirect effects, no mediation effects were found. There was no significant indirect effect of parental goals on toddler prosocial behavior through parental warmth,  $b = .001, \text{BCa CI } [-.028, 0.029]$ .

The same regression analyses was performed with teacher reported prosocial behavior at wave 2, controlling for teacher reported prosocial behavior at wave 1. The results are reflected in Table 4. Teacher reported prosocial behavior at wave 1 was significantly related to teacher reported prosocial behavior at wave 2,  $b = .21, t = 2.01, p = .05$ . Parental goals and parental warmth were not significant predictors of teacher reported toddler prosocial behavior. Additionally, there was no significant indirect effect of parental goals on teacher reported toddler prosocial behavior through parental warmth,  $b = .016, \text{BCa CI } [-.004, 0.073]$ .

Table 3.

*Regression Analyses of the Effect of Parental Warmth on the Relation Between Parental Goals and Toddler Prosocial Behavior*

	<i>b</i>	<i>SE</i>	<i>T</i>	<i>R</i> <sup>2</sup>
				.078
Toddler Prosocial Behavior W1	.206*	.096	2.147	
Parental Goals	.119	.100	1.189	
Parental Warmth	.022	.234	.092	

*Note.* Toddler Prosocial Behavior W2 as dependent variable.

\* $p < .05$ .

Table 4.

*Regression Analyses of the Effect of Parental Warmth on the Relation Between Parental Goals and Teacher reported Prosocial Behavior*

	<i>b</i>	<i>SE</i>	<i>T</i>	<i>R</i> <sup>2</sup>
				.105
Teacher Prosocial Behavior W1	.210*	.105	2.007	
Parental Goals	.030	.069	.442	
Parental Warmth	.254	.170	1.495	

*Note.* Teacher Prosocial Behavior = Teacher reports on toddlers' prosocial behavior; Teacher reports on toddlers' prosocial behavior at W2 as dependent variable.

\* $p < .05$ .

### **Parental warmth and toddler temperament in relation to toddler prosocial behavior**

A regression analyses was performed to examine whether observational toddler prosocial behavior at wave 2, while controlling for toddler prosocial behavior at wave 1, is predicted by parental warmth and toddler temperament, and whether toddler temperament serves as a moderator between parental warmth and toddler prosocial behavior. The results are reflected in Table 5. Prosocial behavior at wave 1 was significantly related to prosocial behavior at wave 2,  $b = .22$ ,  $t = 2.35$ ,  $p = .02$ . Toddler temperament and parental warmth were not significant predictors of toddler prosocial behavior. By examining the interactions, there was a significant interaction effect between parental warmth and toddler temperament,  $b = .33$ ,  $t = 1.99$ ,  $p = .05$ . This interaction accounted for an additional 2.4% of the variance in toddler prosocial behavior,  $\Delta R^2 = .024$ ,  $\Delta F(1, 77) = 3.96$ ,  $p = .05$ . As illustrated in Figure 1, among toddlers high on the temperamental style of anger/frustration, higher levels of parental warmth predicted significant higher levels of toddler prosocial behavior,  $b = .36$ ,  $t = 2.28$ ,  $p =$

.03. In contrast, for those low or average on the temperamental style of anger/frustration, parental warmth was not related to toddler prosocial behavior.

The same regression analyses was performed with teacher reported prosocial behavior at wave 2, while controlling for teacher reported toddler prosocial behavior at wave 1. The results are reflected in Table 6. Teacher reported prosocial behavior at wave 1 was not significantly related to teacher reported prosocial behavior at wave 2,  $b = .22$ ,  $t = 1.95$ ,  $p = .06$ . Parental warmth was a significant predictor of teacher reported prosocial behavior,  $b = .38$ ,  $t = 2.20$ ,  $p = .03$ . Toddler temperament was not a significant predictor of teacher reported prosocial behavior, and no interaction effect was found between toddler temperament and parental warmth.

Table 5.

*Regression Analyses Predicting Toddler Prosocial Behavior at W2 using Parental Warmth and Toddler Temperament*

	<i>b</i>	<i>SE</i>	<i>T</i>	95% CI	$\Delta R^2$
Step 1					.110*
Toddler Prosocial Behavior W1	.225*	.096	2.349	[.034, .415]	
Parental Warmth	.028	.197	.141	[-.365, .421]	
Toddler Temperament	.140	.080	1.751	[-.019, .300]	
Step 2					.024*
Parental Warmth X Toddler Temperament	.325*	.163	.1.989	[-.000, .651]	

*Note.* Toddler Prosocial Behavior W2 as dependent variable.

\* $p < .05$ .

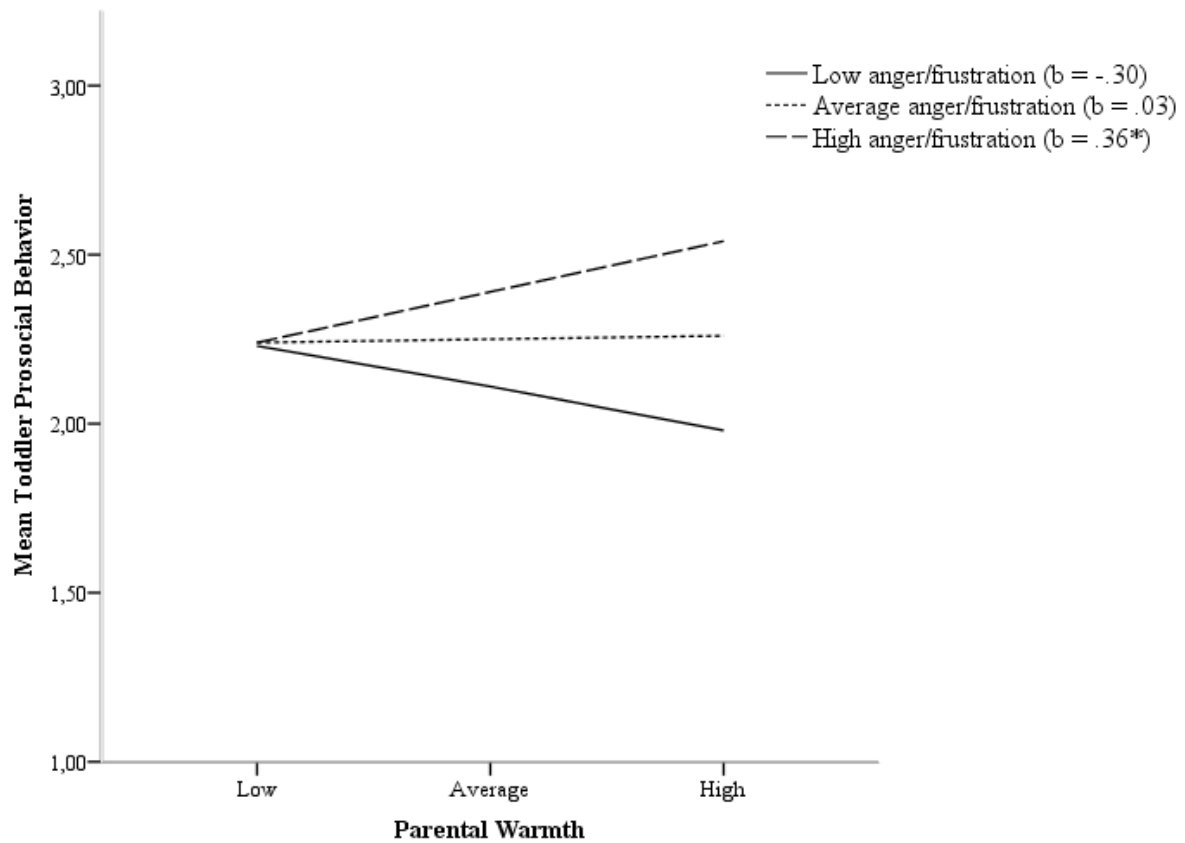


Figure 1. Relation between parental warmth and toddler prosocial behavior, computed at one standard deviation below the mean (low), the mean (average), and one standard deviation above the mean (high) of anger/frustration.

\*  $p < .05$

Table 6.

*Regression Analyses Predicting Teacher Reported Toddler Prosocial Behavior at W2 using Parental Warmth and Toddler Temperament*

	<i>b</i>	<i>SE</i>	<i>T</i>	95% CI	$\Delta R^2$
Step 1					.124*
Teacher Prosocial Behavior W1	.217	.111	1.947	[-.006, .440]	
Parental Warmth	.380*	.173	2.201	[.034, .725]	
Toddler Temperament	.049	.075	.648	[-.101, .198]	
Step 2					.018
Parental warmth X Toddler Temperament	-.187	.140	-1.331	[-.006, .440]	

Note. Teacher Prosocial Behavior = Teacher reports on toddlers' prosocial behavior; Teacher reports on toddlers' prosocial behavior at W2 as dependent variable.

\* $p < .05$ .

### Discussion

This study had two goals. The first goal was to examine whether parental goals of prosocial behavior are predictors of toddler prosocial behavior and whether parental warmth mediates this association. The results suggest that parental goals of prosocial behavior and parental warmth do not significantly predict prosocial behavior of toddlers. Also, there appears to be no significant mediating effect of parental warmth in the relationship between parental goals and toddler prosocial behavior. This applies to both the observed toddler prosocial behaviors, and the reported prosocial behaviors. The hypothesis that higher parental goals of prosocial behavior would lead to a higher degree of prosocial behavior of the toddler, mediated by higher levels of parental warmth, is therefore not confirmed. This is in contradiction with research wherein a relation was found between the expectations of parents about the prosocial behavior of their toddlers, and the collaborating behaviors of toddlers (Schuhmacher & Kärtner, 2015). This can be due to the younger age of the toddlers included in the current research, because before the age of two, the prosocial behavior of toddlers seems to be more coincidental than cooperative (Brownell, Ramani, & Zerwas, 2006). Therefore, the influence of parental goals on toddler prosocial behavior could possibly become more apparent after the age of two. Moreover, the unconfirmed mediating relationship of parental warmth is not in accordance with results showing an association between toddler prosocial behavior and parental warmth (Newton et al., 2016). Because parental behaviors seems to be related to the behavior of toddlers (Grusec, 2011; Patterson & Fisher, 2002), there might be parental behaviors other than warmth that could be related to toddler prosocial behavior. Therefore, future research should focus on this.

The second purpose of this research was to examine whether toddler temperament of anger/frustration moderates the association between parental warmth and toddler prosocial behavior. Results suggest that, for the observational toddler prosocial behavior, there is a significant moderating effect of the toddler temperamental style anger/frustration on the relation between parental warmth and toddler prosocial behavior. With a higher degree of anger/frustration, a higher degree of parental warmth predicts a higher degree of toddler prosocial behavior. Additionally, there seems to be a direct relationship between parental warmth and toddler prosocial behavior, when teacher reported toddler prosocial behavior is taken into account. The hypothesis that the relationship between parental warmth and toddler prosocial behavior would be stronger when toddlers display a higher degree of anger/frustration, is confirmed. This is in accordance with the differential susceptibility



model, whereby positive parenting behaviors have a positive influence on toddlers with a negative temperamental style (Belsky et al., 2007; Slagt et al., 2016). The difference between the results of the observational and teacher reported prosocial behaviors of toddlers is noteworthy. Because the observational and teacher reported prosocial behavior of toddlers were not correlated, it could be due to the possibility that a different construct is measured with the observations and the teacher reports. It could be possible that this is the result of the more structured measure of prosocial behavior by the observational tasks, compared to the more naturalistic measure of prosocial behavior of the teacher reports (Schuhmacher & Kärtner, 2015).

The findings of the current research extend prior work on early prosocial behavior development. Studies have shown that children with the temperamental style negative emotionality, including the subtype anger/frustration, will be more affected by both negative and positive parenting (Belsky et al., 2007; Slagt et al., 2016). However, this temperamental style was not included in research that examined toddler temperament and prosocial behavior (Gross et al., 2015). The present study shows an effect of temperament on the prosocial behavior of toddlers, by including anger/frustration. When toddlers are high on anger/frustration, they are more affected by parental warmth. This result has implications for parenting education, especially because research shows that parents seem to respond less sensitively to children high on negative emotionality, particularly when social or personal risk factors increase the likelihood for less optimal parenting (Crockenberg & Leerkes, 2003).

Although the current research extends the knowledge of early prosocial behavior development, there can be acknowledged several limitations. First, the daycares and children in the sample were not randomly selected. This is of negative influence on the generalizability of the results. In addition, not all variables have met the assumptions of normal distribution and outliers. This means the results have to be interpreted with caution. Third, the difference in amount of cues toddlers needed to help and comfort, were not taken into account in the total score of prosocial behavior. Because there seems to be a decline of communicative cues toddlers need to act prosocially during development (Zahn-Waxler et al., 1992), it could be meaningful to differentiate between whether they performed the behavior and the number of cues needed in future research to obtain a more nuanced assessment of the prosocial behavior.

One of the strengths of the current research is the longitudinal design, to measure the development of prosocial behavior over time. Another strength is the relatively high reliability of the measurements. Additionally, the experimental observation tasks used to measure prosocial behavior controls for social desirability response from parents and teachers.

In conclusion, this research suggests that parental goals do not predict toddler prosocial behavior. Also, there seems to be no mediation effect of parental warmth on the relation between parental goals and toddler prosocial behavior. However, when toddler temperamental style of anger/frustration is taken into account, there is a positive association between parental warmth and observational toddler prosocial behavior. Additionally, parental warmth does predict teacher reported prosocial behavior of toddlers. Thus, parental behaviors (warmth) rather than goals appear to be more strongly related to toddlers' prosocial behavior, with toddler temperament influencing this relation. Future research should therefore focus on additional parental behaviors that could be related to prosocial behavior of toddlers, so development of this behavior can be stimulated.

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